

REMARKS

Claims 1, 2 and 18 have been amended to indicate that the amino-anthracene is non-emissive.

Claims 1-10, 13, 14, 18-26, 29 and 30 were again rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori et al. (US Pat. No. 5,281,489) in view of Matsuura et al. (US Pub. No. 2005/0064233)

Mori et al discloses a three component light emitting layer. The difference between Mori et al and this case is that they do not teach the use of an amino anthracene. It is true that they do discuss anthracene derivatives or tertiary amine derivatives. The anthracene derivatives and tertiary amines are part of a large number of compounds that can be used as the hole moving agent. See Col. 4, lines 40-63 which lists the preferred examples. There would be no motivation in Mori et al to use the claimed amino anthracenes.

Matsuura et al only uses a two component system which are listed as components A and B, see Paragraph 0010. Applicants understand the Examiner's position is that component A could possibly include an amino anthracene. The problem with this analysis is that component A is being used to emit light. The amino anthracene of the present invention is used just for transporting holes within the light-emitting layer. The Matsuura et al component A that is described in Paragraphs 0023 to 0025 can be an amino anthracene. The amino anthracene of present invention does not emit light and the amino anthracene of Matsuura et al (component A) does. This is an entirely different purpose.

Applicants understand the Examiner's position that component A can be contained in a host amount and that the compounds are hole transporting. See paragraph 0093 of Matsuura et al where different concentration ratios of components A and B are discussed. (See paragraph 0093). In any event, whether component A is present in a host or dopant concentration it is clear that component A is being used as a light emissive material. In paragraph 0096, Matsuura et al state "Due to the use of component (A) in combination with component (A) for the layer of an organic light emitting medium, the efficiency can be increased by three to five times as much as the efficiency obtained by using component (A) alone and the life can be increased by at least three times, and by at least ten times when optimized, as long as the life obtained by using

component (A) alone.” There is clearly a typo in this paragraph as the term “in combination with component (A)” should have been in combination with component B. Since component A when used alone emits light and by adding component B there is increased efficiency and lifetime, component A was and still is the only component emitting light. Clearly whether component A is used alone or with component B its purpose is light emission.

In paragraph 0097 Matsuura et al discuss that when general formula V is being used as component A the concentration quenching can be prevented due to steric hindrance. Concentration quenching is a concern specifically when a material is being used for light emission. Typically, light emitting dopants undergo concentration quenching when the dopant is present in larger quantities. The dopant materials interact with each other and the result is a loss of efficiency. This phenomenon is shown and discussed in the Tang et al., Journal of Applied Physics, 65, 3610 (1989) paper which was cited by Applicants at the time of filing and a copy is attached herewith. Particular attention should be directed to page 3612, section B. Fluorescence of doped films and section C. Electroluminescence, subheading 2. EL Spectra, on pages 3613-36-14. Host materials that are being used for moderation of charge transport do not have problems with concentration quenching. This clearly indicates that Matsuura et al are using component A including general formula V as the light emitting material. Matsuura et al are able to use light emissive component A in concentrations that are much higher than typical light emissive dopants due to the fact that component A does not aggregate. However, using component A in large concentrations does not change the fact that this component is being used as a light emissive material.

The independent claims have all been amended to indicate that the amino anthracene is non-emissive since it is not being used as a host. As well understood in the OLED art, when a host is used with a dopant, the host is used to moderate charge transport and the dopant is used to emit light. In all of Applicants examples, the host which includes amino anthracene does not emit light. The dopant is always of lower energy than the host and all of the energy will be transferred to the dopant from the host. Host materials used without a dopant may emit light. Applicants are willing to submit a declaration by Kevin Klubek, an inventor in the present application, that the claimed amino anthracenes do not emit light. Clearly, there is no motivation in

Mori et al or Matsuura et al to use an amino anthracene as a non-emissive host within the light emitting layer. Accordingly, it is believed that independent claims 1, 2, and 18 define unobvious subject matter.

Claims 10-12 and 26-28 were again rejected under 35 U.S.C. § 103(a) as being unpatentable over Mori et al. (US Pat. No. 5,281,489) in view of Matsuura et al. (US Pub. No. 2005/0064233) and in further view of Chen et al. (US Pub. No. 2004/0247937 A1).

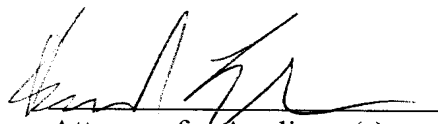
Mori et al and Matsuura et al have been discussed above.

Chen et al does discusses luminescent dyes for the luminescent layer of an OLED. Claims 10-12 and 26-28 depend on one of the independent claims that requires an amino anthracene as a non-emissive host and should be allowed with their base claim.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 22,363

Raymond L. Owens/das
Rochester, NY 14650
Telephone: 585-477-4653
Facsimile: 585-477-4646

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.